SERVICE MANUAL

A099 (E80XN, E90XN, E100XN, E100XNS, E120XN)



Rev. 04/14

MidWestTech | Hyster A099 (E80XN, E90XN, E100XN, E100XNS, E120XN) Forklift Service... Order the manual at mid-west-tech.com >

A099 (E80XN, E90XN, E100XN, E100XNS, E120XN) SERVICE MANUAL CONTENTS

Section	SRM Number	Rev Date
FRAME	0100 SRM 1342	08/13
AC MOTOR REPAIR	0620 SRM 1385	12/12
DRIVE AXLE/WET BRAKES	1300 SRM 1575	09/13
STEERING AXLE	1600 SRM 1360	04/13
STEERING SYSTEM	1600 SRM 1363	09/13
HYDRAULIC SYSTEM	1900 SRM 1367	08/13
HYDRAULIC CLEANLINESS PROCEDURES	1900 SRM 1620	04/13
MAIN CONTROL VALVE	2000 SRM 1334	08/13
CYLINDER REPAIR (MAST S/N A270, A271, A272, A551, A555, A559,	2100 SRM 1382	03/14
A626, A627, A751, A752, B551, B555, B586, B587, B588, B589, B590,	2100 SRM 1382	03/14
WIRE HARNESS REPAIR	2200 SRM 1128	04/14
USER INTERFACE, SUPERVISOR	2200 SRM 1335	02/14
USER INTERFACE, SERVICE	2200 SRM 1336	02/14
ELECTRICAL SYSTEM	2200 SRM 1369	01/14
INDUSTRIAL BATTERY	2240 SRM 0001	03/14
MAST REPAIRS (S/N A551, A555, A559, A751, A752, B586, B587, B588,	4000 SRM 1576	02/14
B590, B591, B749, B750, B751, B752, AND B754)	4000 SRM 1576	02/14
METRIC AND INCH (SAE) FASTENERS	8000 SRM 0231	12/04
DIAGRAMS	8000 SRM 1384	12/12
PERIODIC MAINTENANCE	8000 SRM 1577	08/13
CAPACITIES AND SPECIFICATIONS	8000 SRM 1578	12/12
DIAGNOSTICS TROUBLESHOOTING	9000 SRM 1377	08/13

Rev. 07/99

MidWestTech | Hyster A099 (E80XN, E90XN, E100XN, E100XNS, E120XN) Forklift Service... Order the manual at mid-west-tech.com >

Torque Specifications for Lift Truck J2.2-3.5XN (J45-70XN) (A276)

HYDRAULIC PUMP AND MOTOR

Pump Flange Head Screws
88 to 98 N•m (65 to 72 lbf ft)

Pump to Motor Capscrews
25 N•m (221 lbf in)

Suction Hose Adapter to Hydraulic Pump
91 to 100 N•m (67 to 74 lbf ft)

Pressure Line Fitting to Hydraulic Pump
49 to 59 N•m (36 to 44 lbf ft)

Motor to Pump End Motor Mount Bracket
19 N•m (168 lbf in)

Motor Power Cable Nuts
24 N•m (212 lbf in)

HYDRAULIC TANK

Drain Valve
40 N•m (30 lbf ft)

Temperature Sensor
19 to 21 N•m (168 to 186 lbf in)

Suction Strainer
135 N•m (100 lbf ft)

Filter Housing Capscrews
10 N•m (86 lbf in)

Fitting
45 N•m (33 lbf ft)

Tank Level Sensor
4 to 7 N•m (35 to 62 lbf in)

Breather
10 N•m (89 lbf in)

Pressure Switch
4 to 7 N•m (35 to 61 lbf in)

Torque Specifications for Lift Truck J4.0-5.0XN (J80-100XN) (A970)

HYDRAULIC PUMP AND MOTOR

Pump Flange Head Screws
88 to 98 N•m (65 to 72 lbf ft)

Pump to Motor Capscrews
25 N•m (221 lbf in)

Suction Hose Adapter to Hydraulic Pump
91 to 100 N•m (67 to 74 lbf ft)

Pressure Line Fitting to Hydraulic Pump
78 to 88 N•m (58 to 65 lbf ft)

Motor to Pump End Motor Mount Bracket
19 N•m (168 lbf in)

Motor Power Cable Nuts
24 N•m (212 lbf in)

Motor Mount Bracket to Counterweight
60 to 70 N•m (44 to 52 lbf ft)

HYDRAULIC TANK

Temperature Sensor
19 to 21 N•m (168 to 186 lbf in)

Suction Strainer
135 N•m (100 lbf ft)

Filter Housing Capscrews
15 N•m (133 lbf in)

Fitting
40 N•m (30 lbf ft)

Tank Level Sensor Fitting
45 N•m (33 lbf ft)

Tank Level Sensor
4 to 7 N•m (35 to 62 lbf in)

Breather
10 N•m (89 lbf in)

Pressure Switch
12 N•m (106 lbf in)

MidWestTech | Hyster A099 (E80XN, E90XN, E100XN, E100XNS, E120XN) Forklift Service... Order the manual at mid-west-tech.com >

Truck Wanders, Does Not Track Straight or Steer Well

POSSIBLE CAUSE

A. EXCESSIVE LOADS
B. LOW PNEUMATIC TIRE INFLATION
C. HIGH PNEUMATIC TIRE INFLATION
D. DAMAGED UPPER AXLE MOUNTING EAR
E. STEERING VALVE PROBLEM

CAUSE A - EXCESSIVE LOADS

NOTE: See Serial Number plate or **Operating Manual** for lift capacity.

PROCEDURE OR ACTION:

NOTE: Carrying a load that exceeds truck capacity will cause the steer axle wheels to loose contact with ground and negatively affect control of truck.
Check load weight and compare to truck capacity rating.

CAUSE B - LOW PNEUMATIC TIRE INFLATION

PROCEDURE OR ACTION:
Check and adjust tire inflation. See **Operating Manual**.

CAUSE C - HIGH PNEUMATIC TIRE INFLATION

PROCEDURE OR ACTION:
Check and adjust tire inflation. See **Operating Manual**.

CAUSE D - DAMAGED UPPER AXLE MOUNTING EAR

PROCEDURE OR ACTION:

NOTE: The upper axle ear can be bent if lift truck suddenly drops its load while rear steer axle wheels are off the ground.
Inspect axle pinion bearings vertical movement.

Does pinion bearings have excessive endplay?

YES: Replace axle. Depending on your lift truck, see **Transaxle** 1300 SRM 1330 or **Steering Axle** 1600 SRM 1360.

NO: Go to Cause E.

CAUSE E - STEERING VALVE PROBLEM

PROCEDURE OR ACTION:
Check steering hydraulics. Perform Tests and Adjustments-Gear Pump, Steering Control Unit LS Pressure Test, Page 9050-43-21.

END SYMPTOM

MidWestTech | Hyster A099 (E80XN, E90XN, E100XN, E100XNS, E120XN) Forklift Service... Order the manual at mid-west-tech.com >

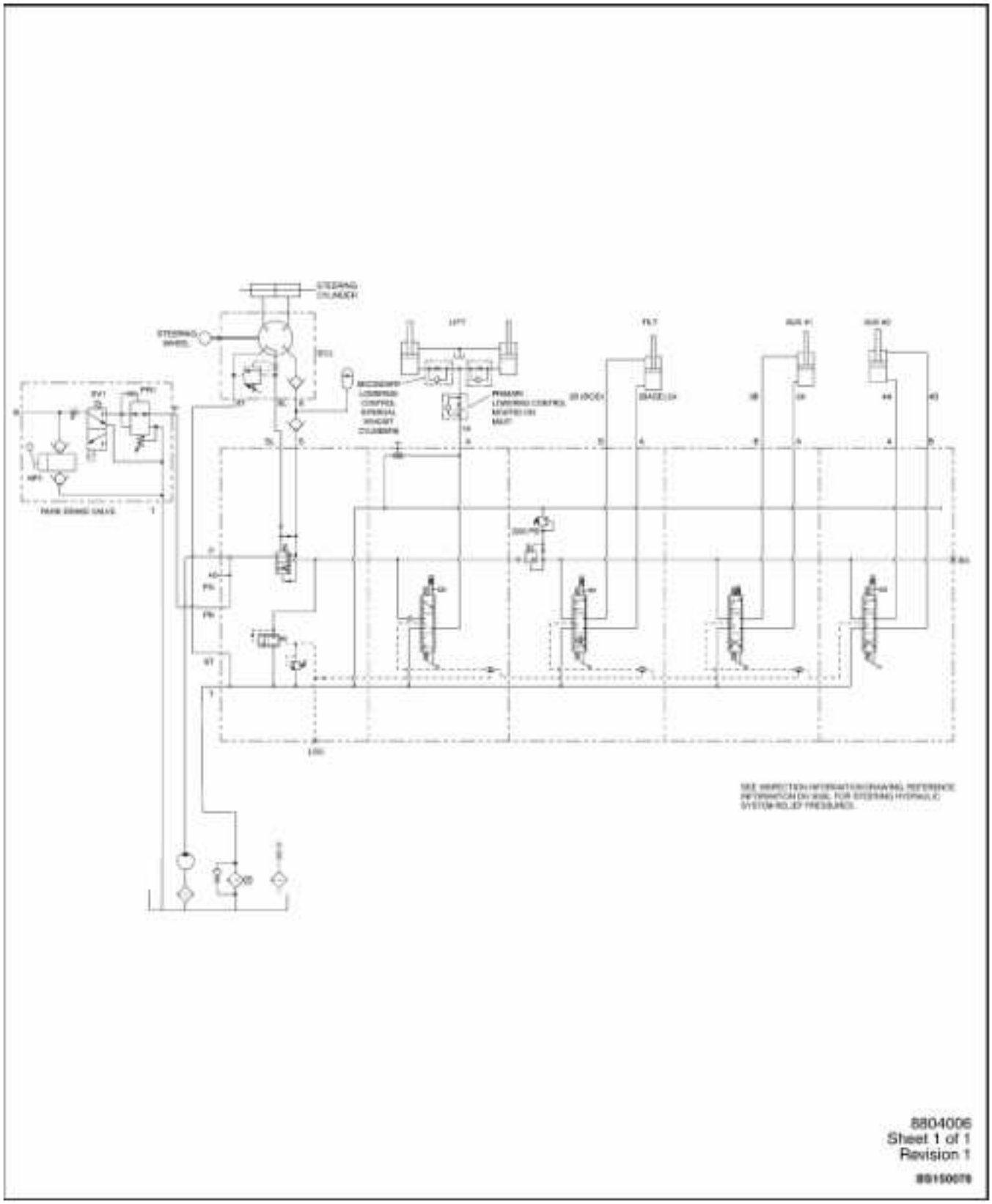


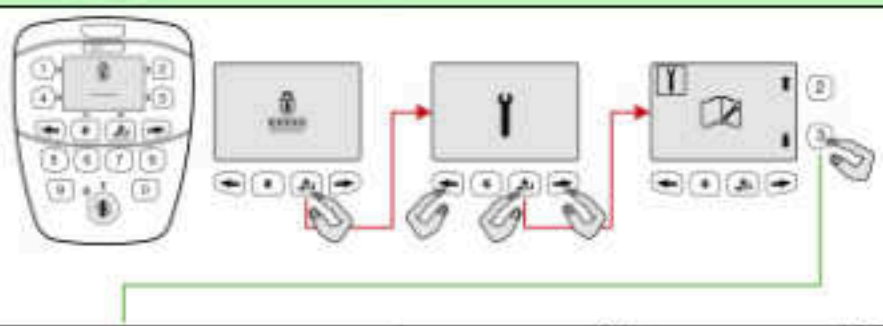
Figure 10. Manual Hydraulic Schematic for E4.0-5.5XN, E4.5XNS (E80-120XN, E100XNS) (A099)

MidWestTech | Hyster A099 (E80XN, E90XN, E100XN, E100XNS, E120XN) Forklift Service... Order the manual at mid-west-tech.com >

TSP Steer Axle Calibration Required (Cont)

CAUSE D

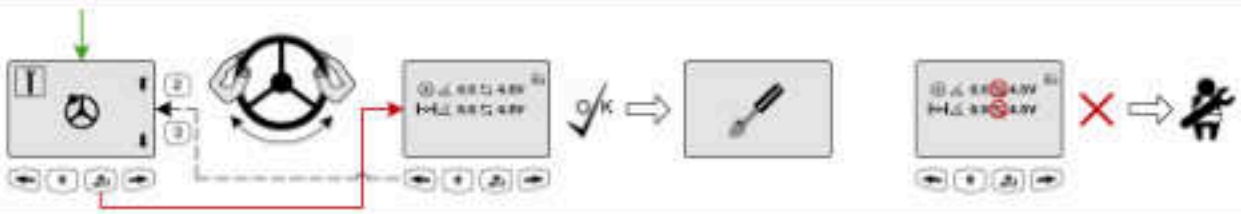
Calibration Process--Go to Display Menu



Enter SERVICE Password→ ☞* ⇆Diagnostics→ ☞* ↓↑Steering Sensor

CAUSE D1

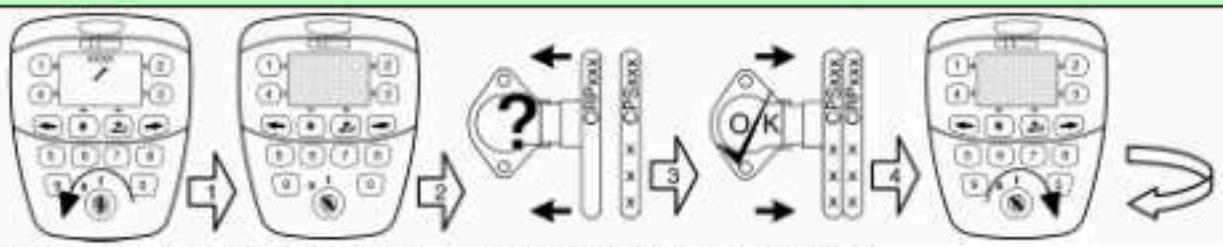
Steering Sensor Values



1. ☞*→ Rotate steering wheel ↑ Values vary >0.5V <4.5V = H→ Proceed with Calibration→ Cause D3↓
2. ☞*→ Rotate steering wheel ↑ Values =the same = X=Steer Mechanism/Faulty Sensor→ Go to 3↓
3. Check Steer Mechanism Operation→ Mechanism H→ Cause D2↓ Mechanism X Go to 4↓
4. See **Steering System** 1600 SRM 1331/**Steering System** 1600 SRM 1363 repair.

CAUSE D2

Steer Sensor(s) Replacement



1. Power **OFF**→ Disconnect sensor **Do not discard.**→ Install new sensor→ Power **ON**→ Go to 2↓
2. See **Electrical System** 2200 SRM 1337/**Electrical System** 2200 SRM 1369.

(continued on next page)

MidWestTech | Hyster A099 (E80XN, E90XN, E100XN, E100XNS, E120XN) Forklift Service... Order the manual at mid-west-tech.com >

High Tire Wear - Steer Axle

POSSIBLE CAUSE

A. RUNNING OVER OIL/SOLVENTS AND DEBRIS
B. EXCESSIVE SPEED ON TURNS AND STOPS
C. TURNING WITH MACHINE STOPPED OR NO LOAD ON FORKS
D. LOW PNEUMATIC TIRE INFLATION
E. HIGH PNEUMATIC TIRE INFLATION
F. FAILED WHEEL BEARINGS
G. LOOSE TIE RODS

CAUSE A - RUNNING OVER OIL/SOLVENTS AND DEBRIS

PROCEDURE OR ACTION:
Visually inspect work area for contaminates and debris.

CAUSE B - EXCESSIVE SPEED ON TURNS AND STOPS

PROCEDURE OR ACTION:
Reduce speed and spinning of wheels.

CAUSE C - TURNING WITH MACHINE STOPPED OR NO LOAD ON FORKS

PROCEDURE OR ACTION:

NOTE: Steering without load on forks puts the highest load on steer axle because of counterweight. Avoid steering wheels when not moving to reduce tire wear.
Steer while moving whenever possible.

CAUSE D - LOW PNEUMATIC TIRE INFLATION

PROCEDURE OR ACTION:
Check and adjust tire inflation. See **Operating Manual**.

CAUSE E - HIGH PNEUMATIC TIRE INFLATION

PROCEDURE OR ACTION:
Check and adjust tire inflation. See **Operating Manual**.

CAUSE F - FAILED WHEEL BEARINGS

PROCEDURE OR ACTION:
Inspect wheel bearings.

Are bearings in good condition?

YES: Tires are defective. See tire manufacturer for warranty.

NO: Replace wheel bearing. Depending on your lift truck, see **Transaxle** 1300 SRM 1330 or **Steering Axle** 1600 SRM 1360.

CAUSE G - LOOSE TIE RODS

PROCEDURE OR ACTION:
Inspect joint where tie rods are attached to pinion assembly.

Is the tie rod tight in bore?

YES: See Wheels Appear Tipped or Misaligned.

NO: Replace tie rod. Depending on your lift truck, see **Transaxle** 1300 SRM 1330 or **Steering Axle** 1600 SRM 1360.

MidWestTech | Hyster A099 (E80XN, E90XN, E100XN, E100XNS, E120XN) Forklift Service... Order the manual at mid-west-tech.com >